BEETLE FLYER • WINTER 2010

Great Plains Aircraft Supply Co., Inc.

Happy Holidays!

Hoping that 2010 was a great year for each of you! And we hope that your airplanes are getting close to flight!

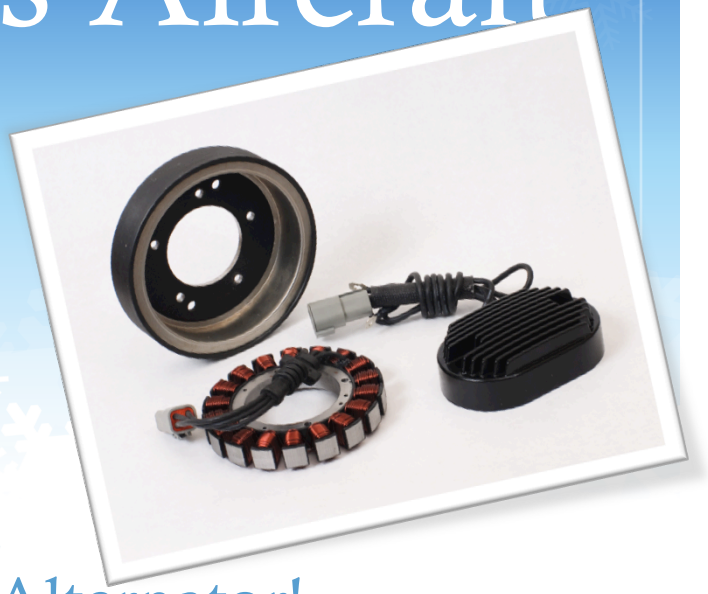
We thank each of you for being our customers and another successful year at Great Plains!

Hope that 2011 is full of great flying days!

This next year, will be our 29th year (that's very hard to believe) of selling VW conversions and parts for Sport Aircraft. We have exhibited at Sun and Fun and Oshkosh, (now Air Venture) since 1984. Plus we have been conducting many forums and workshops at both of these air shows.

What's in the Beetle Flyer?

- New 12" x 4" x 5" Tire
- Ethanol in Fuel
- Sun & Fun 2011
- Oil Choice
- Fuel Injection & MORE!



NEW! 35 Amp, 3 Phase Alternator!

The new 35 Amp 3 phase alternator brings many benefits to our VW conversions. First, all the amps are in by 1500 rpm. The magnet ring has a .006" stainless steel ring pressed around the magnets so they can never come loose and wedge between another magnet and the stator. And the best benefit is that 3 phase does not produce any electrical noise for your radio! This fact is not so important for metal or steel tube airframes that have a good ground, i.e., the whole airframe. But for wood and plastic aircraft it can make a tremendous difference in noise, especially if you using one of the less expensive aircraft radios.

To answer a few questions:

Will my older Diehl Case accept the new 35 amp 3 phase alternator? No, it won't. The magnet ring on the 3 phase alternator is about 3/8" deeper that the old 20 and 22 amp alternators. The Master Pattern had to be modified to accept the new alternator.

Will I still be able to get parts for the 22 amp alternator? Yes, we kept back a good supply of stators, regulators/rectifiers and have an adequate supply of magnet rings. The only parts we have really replaced to date are a few stators and the regulator rectifiers. Keeping the regulator/rectifier cool and making sure they have a good ground is the secret to keeping them healthy.

Is there a weight difference between the new 35 amp 3 phase alternator and the old 22 amp single phase alternator? Yes, the new alternator with regulator weighs about 3 pounds more.

NEW! 12” x 4” x 5” Slick Tire & Tube!

Many years ago we had a great 12 x 4 x 5 - 4 ply slick tire and tube available. Dimensionally it is only 1” narrower than a standard aircraft 500 x 5 tire. It disappeared many years ago.

While at the Small Engine Trade Show in Louisville, KY, this fall, we found our old 12 x 4 x 5 4 ply slick tire to be available once again. A pair of them, 2 tires and 2 tubes runs $74.95 plus shipping.

Ethanol in Fuel

We may be finding that the ethanol in the fuel we use in our aircraft may not be the best thing to burn in our VW conversions. We had two cases this year of stuck valves - in almost brand new engines! Both engines were using ethanol. The valves stuck as early as 2 hours on one engine and at about 5 hours of operation on the other.

While it is not by any means a scientific test, just be overly cautious if using ethanol laced auto fuel. This might be a good discussion topic on some of the VW yahoo sites and at Sonerai.net to see if any other VW flyers that are using ethanol and what, if any issues they have had. I would be especially cautious if using a POSA type carburetor due to the increased possibility of vapor lock.

Sun & Fun 2011!

Sun and Fun is earlier this year (March 29 to April 3)! We will again host our “Build a VW Engine” in the Engine workshop area. This is a four day workshop that only takes 1 to 2 hours per day - starting at 11:00 A.M.
Day 1 is VW Aviation History, engine selection, and what parts to use and not to use.
Day 2 is assembly of the short block.
Day 3 is completing the engine assembly and adding the accessories.
Day 4 is fuel, carbs, and cooling.
No need to sign up, just show up. We have ran this program at Sun and Fun for about the last 10 years and at Oshkosh for the last 5 years (or so) and have had literally 100’s of graduates. Well, no one got a diploma, actually… But, we think it has made flying a VW safer at any rate!

Easy Eagle I takes Flight in Nebraska!

Back in 2005 I started building an Easy Eagle I. Unfortunately I would rather fly than build and when my bride said – If you don't want to finish it – why don't you sell it? That is when the project ended up with Kevin Wilkinson. Kevin took the wings without fabric and the fuselage on gear home to Grand Island, NE to finish. He finished it beautifully!

The Easy Eagle I took flight this summer! He said that it flew wonderfully. He truly enjoys flying it!

GARAGE SALE RETURNS!

As soon as the Christmas holiday is past…. We will be cleaning out the garage and attic to find those items we no longer need. Then pictures will be taken and uploaded to our web site. This is your warning!

Last of the Sonerai Newsletters…

2010 marked the end of the Sonerai Newsletter written by Fred Keip. We celebrated his many years of service to the Sonerai Builders at Oshkosh Air Venture this year. Fred isn't leaving the Sonerai builders – he can be found at Sonerai.net! Thank you Fred!

Fuel Injection for VW's?

We get asked frequently about fuel injection for VW engines and why don't we have it available. After going through the exercise ourselves and with a few customers both in the states and abroad that have it on their VW powered aircraft the simple answer is it's "simply too expensive"!

One of the easiest systems to use is a system made by SDS out of Canada (their system is installed on the engine to the right). The parts for the system with the programmer runs about $1300.00. Next, add a high pressure fuel pump (or two) at $125 each. Now we have to add a throttle body. You can find a used one off of E-bay for an old 1.9L Ford for about $30, but if you want a new one, it is $400. Injectors - new ones run $60ish each x 4. Add a fuel pressure regulator at $85 to $150. Intake manifold (custom built) is about $400, with bungs for the injectors. And let's not forget the hoses and fittings!

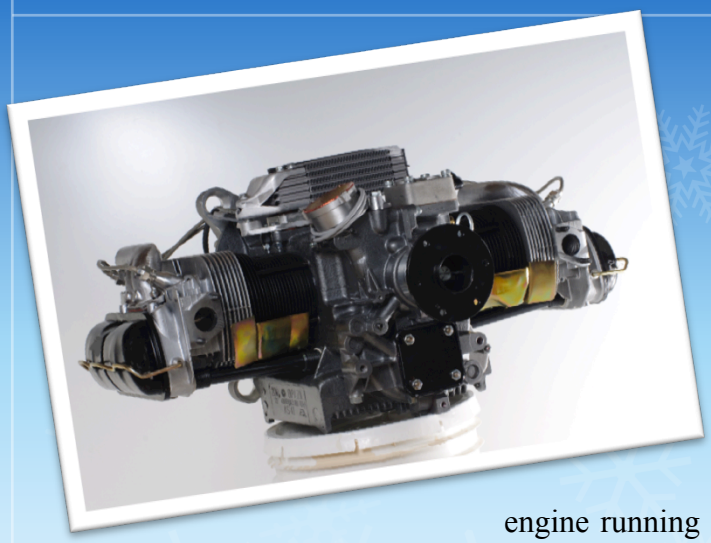
Then of course we need a throttle position sender, air temp sender, manifold pressure sender, CHT sender, rpm sensor, etc… (some of these item are in the SDS kit). In reality by the time you add up all the expenses of a fuel injection system for the VW and add some profit, the system is going to sell within a couple hundred dollars of $3000! Not real feasible is it? Especially for an engine that sells for $6000 to $7000 dollars is it? Who is going to spend half the price of an engine, for a fuel delivery system? Not many!

Oil for your VW?

Everyone has a different opinion on what oil to use and which weight. The VW service manual says '30 weight oil'. That is what I have always used and is what we recommend for our engines. Remember the oil has to go through the small opening on the lifter, up the small hole on both ends of the pushrod tube, through the rocker arm and down the thread of the adjusting screw to lubricate the valve train. A higher viscosity oil, takes longer to warm up, is harder to get pushed through the narrow opening in the lifter, pushrod and rocker arm. Camshaft - lifter and valve train failure can all be attributed to thick oil. A 60 weight oil for example is 100% thicker that a 30 weight oil, at least by my math.

Oil has a number of jobs to do in an engine, not just lubricate. The oil's primary other job of course is to collect heat, transport it to the oil cooler and shed the heat. A high viscosity oil will produce a higher oil pressure, but at the expense of a higher oil temperature.

The VW service manual lists the following for a minimum oil pressure**: "Oil pressure for SAE 30 only" at an oil temperature of 158ºF at 2500 rpm results in 28 psi for a Type 1 engine.** It does not list a max at any other rpm, nor does it list a minimum at idle.



Extended Storage?

If you have a brand new engine that's never been run or one on your aircraft that just sits for the winter, you may consider prepping your engine for storage. Here are several easy things you can do that will keep your engine healthy.

1. For an installed, running engine, consider fogging it. Simply, use a spray bottle of lightweight oil and spray the carburetor with the engine running at about 1200 rpm and choke the engine down so it quits. Yes, the engine should be at operating temps and if needed, remove the prop to do this.
2. For an non-installed, non-running engine - remove the top plugs and using a syringe, put an ounce or 2 of oil in the cylinder. I use a small tube on the end so I can move it around a little when pushing the oil out of the syringe. Do this to each cylinder and re-install the plugs. Do not turn the engine over again!
3. Remove the valve covers and take the rocker arms off. This closes any valves that may be open and keeps the moisture out of the cylinder. Stops our good friend "Rusty" from working. Keeps him on unemployment!
4. Cover the carburetor inlet up so air cannot enter.
5. Cover the exhaust outlet up so air cannot enter.
6. If you cylinders are not painted, spray a light coat of WD-40 on them to prevent winter rust. But don't get carried away.
7. Change the oil! Don't let used oil sit in you engine all winter long. You may consider adding the 4th quart so oil is up over the camshaft and lifter. If you have a tail dragger, raising the tail so the aircraft/engine are level for the winter. This covers more internal engine parts.
8. If allowed by your Airport Authority, you may install a 40W light bulb or two in the cowling, under

EGT and CHT Confusion?

There is lots of confusion about EGT and CHT. I would advise all to go to these three web pages and read the facts about both:

http://www.avweb.com/news/maint/egt_and_cht_interpretation_198791-1.html
http://www.sportaviationonline.org/sportaviation/201009/?pg=95#pg95
http://www.foxvalleykart.com/gauges.html

Understanding egt/cht will make your flying a lot more comfortable if you aren't worrying about your EGT in particular. Both of these articles in that link are very good!

And on the CHT side… I would only add that if you take your CHT reading on a VW under the plug… which is the hottest spot, the max is usually about 450ºF. If you are taking the reading from under a cylinder head stud washer, behind the intake manifold, the maximum CHT should be about 325ºF.